

Amendments to the Claims

Please amend the claims without prejudice. The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims

1. (Currently Amended) A drilling apparatus comprising:
a turbine (2) being provided with a turbine shaft (4),
a hydraulic braking device configured to operate with the turbine wherein the hydraulic braking device comprises at least one body (12) connected to the turbine shaft (4),
and wherein when the hydraulic braking device (10) is immersed in a fluid medium, rotation of the turbine shaft (4) about its axis (6) causes a movement of the at least one body (12) with respect to the fluid medium, this movement generating a resisting torque (T) that is a function of the square of the rotation speed (ω) of the turbine shaft (4) with respect to the fluid medium providing a quadratic relation; and
wherein the construction of the braking device is such that a braking effect is obtained when the rotation speed of the turbine exceeds a predetermined threshold value and the braking effect is not obtained when under the predetermined threshold value as a result of the quadratic relation.
2. (Previously presented) The device (10) according to claim 1, further comprising a braking shaft (14) coupled to the turbine shaft (4), the at least one body (12) being connected to the braking shaft (14).
3. (Previously presented) The device (10) according to claim 2, wherein the coupling between the braking shaft (14) and the turbine shaft (4) is such that an axial rotation of the turbine shaft (4) causes axial rotation of the braking shaft (14).
4. (Previously presented) The device (10) according to claim 2, wherein the braking shaft (14) is coaxial with the turbine shaft (4).

5. (Previously presented) The device (10) according to claim 2, wherein the braking shaft (14) and the turbine shaft (4) are combined into a single shaft.

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Previously presented) The device (10) according to claim 2, wherein the at least one body (12) is driven in rotation with the braking shaft (14) when the turbine shaft (4) rotates about its axis.

10. (Previously presented) The device (10) according to claim 2, wherein the at least one body (12) is rigidly connected to the ~~said~~ braking shaft (14) through a connecting means (18, 20).

11. (Previously presented) The device (10) according to claim 2, wherein the at least one body (12) is fixed directly onto the braking shaft (14) through a connecting means composed of at least one anchor zone (18) of the body (12).

12. (Canceled)

13. (Canceled)

14. (Previously presented) The device (10) according to claim 2 wherein when the hydraulic braking device comprises more than one body (12), the bodies (12) are distributed around the periphery of the braking shaft (14), in a regular manner, or in a non-regular manner.

15. (Previously presented) The device (10) according to claim 2, wherein when ~~it~~ the hydraulic braking device comprises more than one body (12), the bodies (12) have either all the same axial positions along the braking shaft (14), or different axial positions along the braking shaft (14).

16. (Previously presented) The device (10) according to claim 1, wherein when ~~it~~ the hydraulic braking device comprises more than one body (12), the bodies (12) are chosen to be identical or different

17. (Previously presented) The device (10) according to claim 1, wherein when ~~it~~ the hydraulic braking device comprises more than one body (12), the bodies (12) all have the same dimensions.

18. (Canceled)

19. (Previously presented) The device (10) according to claim 1, wherein ~~it~~ the hydraulic braking device is arranged on the downstream side of the turbine (2) with respect to a flow direction of the fluid medium.

20. (Canceled).

21. (Canceled)

22. (Canceled)

23. (Currently amended) A turbine (2) comprising:

- a turbine shaft (4) and;
- a hydraulic braking device (10) comprising at least one body (12) connected to the turbine shaft (4);

wherein when the hydraulic braking device (10) is immersed in a fluid medium, rotation of the turbine shaft (4) about its axis (6) causes a movement of the at least one body (12) with

respect to the fluid medium, this movement generating a resisting torque (T) that is a function of the square of the rotation speed (ω_0) of the turbine shaft (4) with respect to the fluid medium providing a quadratic relation; and

wherein the construction of the braking device is such that a braking effect is obtained when the rotation speed of the turbine exceeds a predetermined threshold value and the braking effect is not obtained when under the predetermined threshold value as a result of the quadratic relation.